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CLAIMS

1. A process for preparing a modified metallosilicate catalyst composite comprising of a mixture of amorphous silica, alumina and a pore size controlled metallosilicate useful for alkylaromatic conversion, the said process comprising
   a) contacting an intermediate pore metallosilicate with an organosilicon compound in a solvent for a specific duration and then recovering the solvent
   b) combining the organosilicon compound treated metallosilicate with water and then drying the catalyst
   c) repeating the steps a) and b) above
   d) calcining the catalyst in an oxygen containing atmosphere sufficient to remove the organic material and deposit siliceous matter on the metallosilicate.
2. A process as claimed in claim 1 wherein said organosilicon compound is water insoluble.
3. A process as claimed in claim 2 wherein the said organosilicon compound is tetraalkoxy silane.
4. A process as claimed in claim 3 wherein the said tetraalkoxy silane is tetraethoxy silane.
5. A process as claimed in claim 1 wherein the said solvent is selected from lower aliphatic alcohols, C_5-C_{10} saturated linear or cyclic hydrocarbons, C_6-C_8 aromatics or mixture thereof.
6. A process as claimed in claim 5 wherein the said solvent is a mixture of toluene and methanol.
7. A process as claimed in claim 1 wherein the concentration of the organosilicon compound in said solvent is in the range of 1 to 25 percent by weight.
8. A process as claimed in claim 1 wherein the said metallosilicate is treated with the organosilicon compound containing solution for 0.5 to 24 hours.
9. A process as claimed in claim 1 wherein the said solvent is recovered after metallosilicate is treated with the organosilicon compound containing solution.
10. A process as claimed in claim 1 wherein amount of said water is in the range of from 1 to 200 percent, preferably 2 to 100%, more preferably, 5 to 90% of the mass of the metallosilicate.
11. A process as claimed in claim 1 wherein the said water combined metallosilicate composite is dried at a temperature of from 10 to 150 °C,

12. A process as claimed in claim 11 wherein the said water combined metallosilicate composite is dried at a temperature of 50 to 150°C.

13. A process as claimed in claim 11 wherein the said water combined metallosilicate composite is dried at a temperature of from 80 to 130°C.

14. A process as claimed in any of the claims 11 wherein the said wet metallosilicate composite is dried for from 1 to 20 hours.

15. A process as claimed in claim 1 wherein the step a) and step b) are repeated more than once.

16. A process as claimed in claim 1 wherein the solvent recovered is reused.

17. A process as claimed claim 1 wherein the said calcination is carried out at a temperature in the range of from160 to 800°C.

18. A process as claimed claim 17 wherein the said calcination is carried out at a temperature in the range of from 300 to 600 °C.

19. A process as claimed claim 17 wherein the said calcination is carried out at a temperature in the range of from 400 to 550°C.

20. A modified metallosilicate catalyst composite comprising of a mixture of amorphous silica, alumina and a pore size controlled metallosilicate, useful for alkylaromatic conversion prepared by the process of claim 1.

21. A process for preparing a modified metallosilicate catalyst composite comprising of a mixture of amorphous silica, alumina and a pore size controlled metallosilicate useful for alkylaromatic conversion, the said process comprising

a) contacting an intermediate pore metallosilicate with a water insoluble organosilicon compound in a solvent and then recovering the solvent

b) combining the organosilicon compound treated metallosilicate with water, the amount of water employed being in the range of from 1 to 200 percent of the mass of said metallosilicate,

c) drying the product from step b) at a temperature in the range of 10 to 150°C;

d) repeating the steps a) and b) above

e) calcining the product in an oxygen containing atmosphere at a temeprature in the range of 160 to 800°C sufficient to remove the organic material and deposit siliceous matter on the metallosilicate.

22. A process for preparing a catalyst composite comprising of a mixture of amorphous silica, alumina and a pore size controlled metallosilicate useful for alkylaromatic conversion, said process comprising

a) contacting an intermediate pore metallosilicate with an organosilicon compound in a solvent for a specific duration and then recovering the solvent

b) drying the catalyst

c) repeating the steps a) and b) above

d) calcining the catalyst in an oxygen containing atmosphere sufficient to remove the organic material and deposit siliceous matter on the metallosilicate.

23. A process as claimed in claim 22, wherein said organosilicon compound used is water soluble.

24. A process as claimed in claim 22 wherein the said organosilicon compound is aminoalkytrialkoxy silane.

25. A process as claimed in claim 24 wherein the said aminoalkytrialkoxy silane is 3-aminpropyl triethoxysilane.

26. A process as claimed in claim 22 wherein the said solvent is selected from lower aliphatic alcohols, C_5-C_{10} saturated linear or cyclic hydrocarbons, C_6-C_8 aromatics or mixture thereof and water.

27. A process as claimed in claim 22 wherein the said solvent is water.

28. A process as claimed in claim 22 wherein the concentration of the organosilicon compound in said solvent is in the range of 1 to 99%, preferably, 2 to 50%, more preferably 5 to 25% by weight.

29. A process as claimed in claim 22 wherein the said metallosilicate is treated with the organosilicon compound containing solution for 0.5 to 24 hours.

30. A process as claimed in claim 22 wherein the said solvent is recovered after metallosilicate is treated with the organosilicon compound containing solution.

31. A process as claimed claim 22 wherein the said organosilicon compound treated metallosilicate composite is dried at a temperature form 10 to 150 °C.

32. A process as claimed in claim 22 wherein said water treated metallosilicate composite is dried for at least 1 hour.

33. A process as claimed in claim 22 wherein the step a) and step b) are repeated at least once.

34. A process as claimed in claim 22 wherein the solvent recovered from the silanation step is reused for further silanation.

35. A process as claimed in claim 22 wherein the said calcination in said oxygen containing atmosphere is carried out at a temperature in the range 160 to 800 °C

36. A process as claimed in claim 22 wherein the said metallosilicate is selected from the group of pentasil familiy e.g. such as Ga-ZSM-5, Fe-ZSM-5, B-ZSM-5, Ga-Al-ZSM-5, Fe-Al-ZSM-5, B-Al-ZSM-5.

37. A process as claimed in claim 22 wherein the said metallosilicate is selected from the group of pentasil familiy e.g. such as Ga-ZSM-5, Fe-ZSM-5, B-ZSM-5, Ga-Al-ZSM-5, Fe-Al-ZSM-5, B-Al-ZSM-5.

38. A process as claimed in claim 36 wherein said metallosilicate is Ga-Al-ZSM-5 having silicon to aluminium ratio in the range of 150 to 600 and silicon to gallium ratio is in the range of 500 to 2000.

39. A process as claimed in claim 37 wherein said metallosilicate is Ga-Al-ZSM-5 having silicon to aluminium ratio in the range of 150 to 600 and silicon to gallium ratio is in the range of 500 to 2000.

40. A process for alkylaromatic hydrocarbon conversion comprising contacting the a mixture of hydrocarbons feed with a catalyst under the conditions effective to convert said hydrocarbon feed to a hydrocarbon product different from said hydrocarbon feed, wherein said catalyst is prepared by a process comprising

a) contacting an intermediate pore metallosilicate with an organosilicon compound in a solvent for a specific duration and then recovering the solvent

b) combining the organosilicon compound treated metallosilicate with water and then drying the catalyst

c) repeating the steps a) and b) above

d) calcining the catalyst in an oxygen containing atmposphere sufficient to remove the organic material and deposit siliceous matter on the metallosilicate.

41. A process for alkylaromatic hydrocarbon conversion comprising contacting the a mixture of hydrocarbons feed with a catalyst under the conditions effective to convert said hydrocarbon feed to a hydrocarbon product different from said hydrocarbon feed, the wherein said catalyst is prepared by the process comprising

a) contacting an intermediate pore metallosilicate with an organosilicon compound in a solvent for a specific duration and then recovering the solvent

b) drying the catalyst

c) repeating the steps a) and b) above

d) calcining the catalyst in an oxygen containing atmposphere sufficient to remove the organic material and deposit siliceous matter on the metallosilicate.

42. A process as claimed in claim 40 wherein the hydrocarbon conversion is selective alkylaromatic alkylation of with an alkylating agent selected form the lower aliphatic alcohol or lower alkenes.

43. A process as claimed in claim 42, wherein the alkylaromatic compound is toluene.

44. A process as claimed in claim 40, wherein the alkylating agent is methanol.

45. A process as claimed in claim 40 wherein the product comprises of xylenes with very high selectivity for para-xylene and the said conversion is by alkylation.

46. A process as claimed in claim 40 wherein the hydrocarbon conversion is selective alkylaromatic alkylation of with an alkylating agent selected form the lower aliphatic alcohol or lower alkenes.

47. A process as claimed in claim 42, wherein the alkylaromatic is toluene.

48. A process as claimed in claim 40, wherein the alkylating agent is methanol.

49. A process as claimed in claim 40 wherein the product comprises of xylenes with very high selectivity for para-xylene and the said conversion is by alkylation

50. A process for preparing a modified metallosilicate catalyst composite comprising of a mixture of amorphous silica, alumina and a pore size controlled metallosilicate useful for alkylaromatic conversion, the said process comprising

a) contacting an intermediate pore metallosilicate with a water soluble organosilicon compound in a solvent and then recovering the solvent

b) drying the product from step a) at a temperature in the range of 10 to 150°C;

c) repeating the steps a) and b) above

d) calcining the product in an oxygen containing atmosphere at a temeprature in the range of 160 to 800°C sufficient to remove the organic material and deposit siliceous matter on the metallosilicate.